



TROUBLESHOOTING PROCESS-OF-USE ISSUES

Cyrel® Packaging Graphics

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Sr. Technical Analyst



The miracles of science™



Process-of-Use Issues

- * **Plate chipping**
- * **Plate cracking**
- * **Uneven plate thickness**
- * **Pinholing**
- * **Release layer removal**
- * **Out of contact (analog)**
- * **Underexposure-Analog Plate**
- * **Premature plate wear**





Plate Chipping

PRE-PRESS

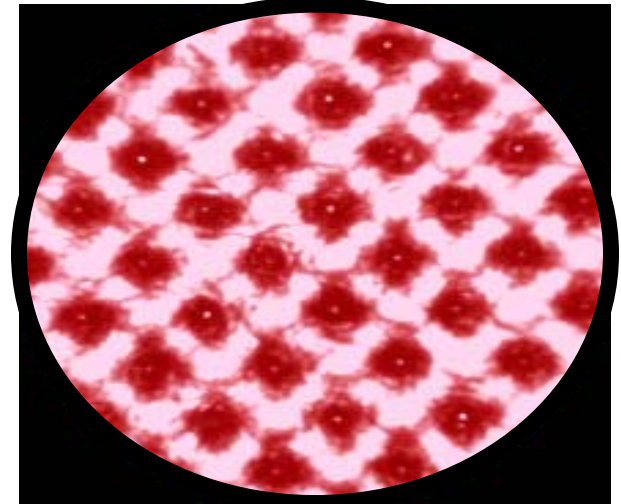
- Improper Bump Curve



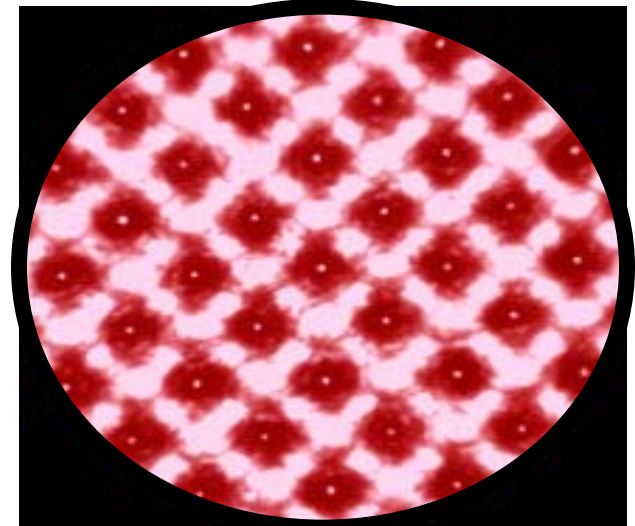
IMPROPER BUMP CURVE



MIN. DOT

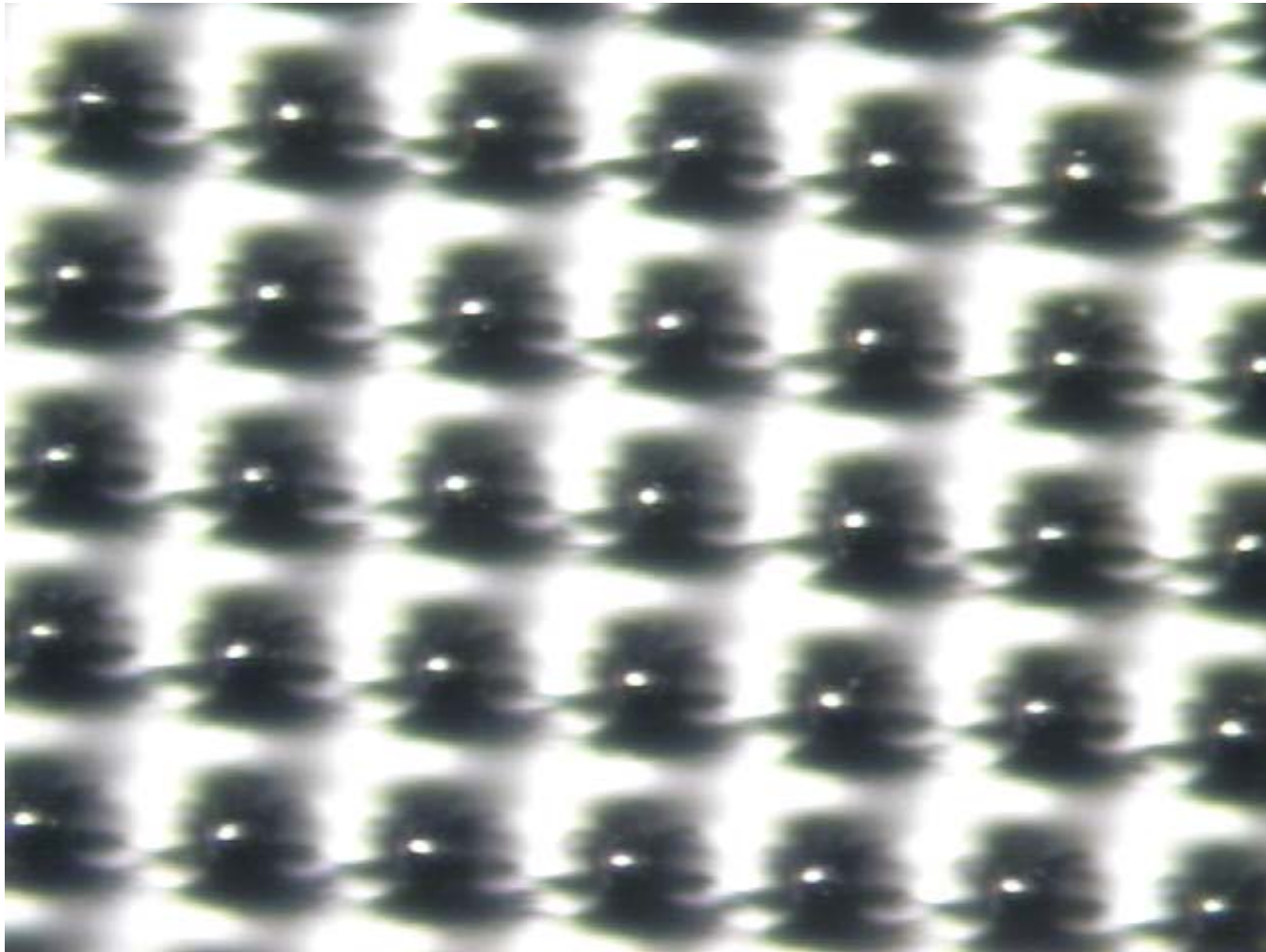


Below Minimum



Minimum

Good Digital Highlight Dots



Bad Digital Highlight Dots

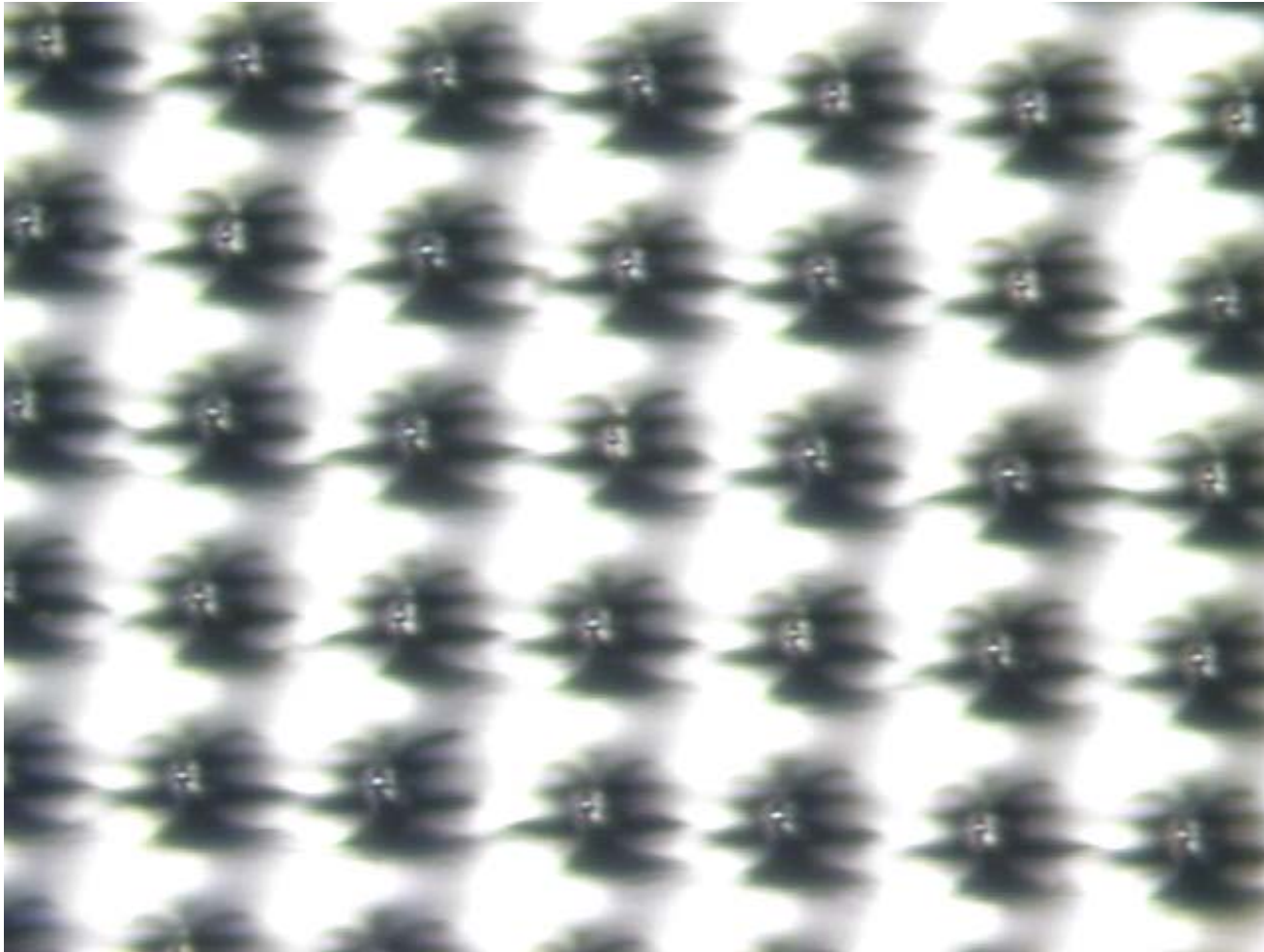




Plate Chipping

PLATEMAKING

Improperly exposed plate

- Excessive main exposure
- Insufficient back exposure
- Excessive finishing
- Excessive post exposure





Plate Chipping

Improper processing

- Excessive washout
- Washout solvent out of balance
- Insufficient replenishment/dirty tank
- Excessive washout brush pressure
- Dirty/hard brushes



Plate Chipping - Processor

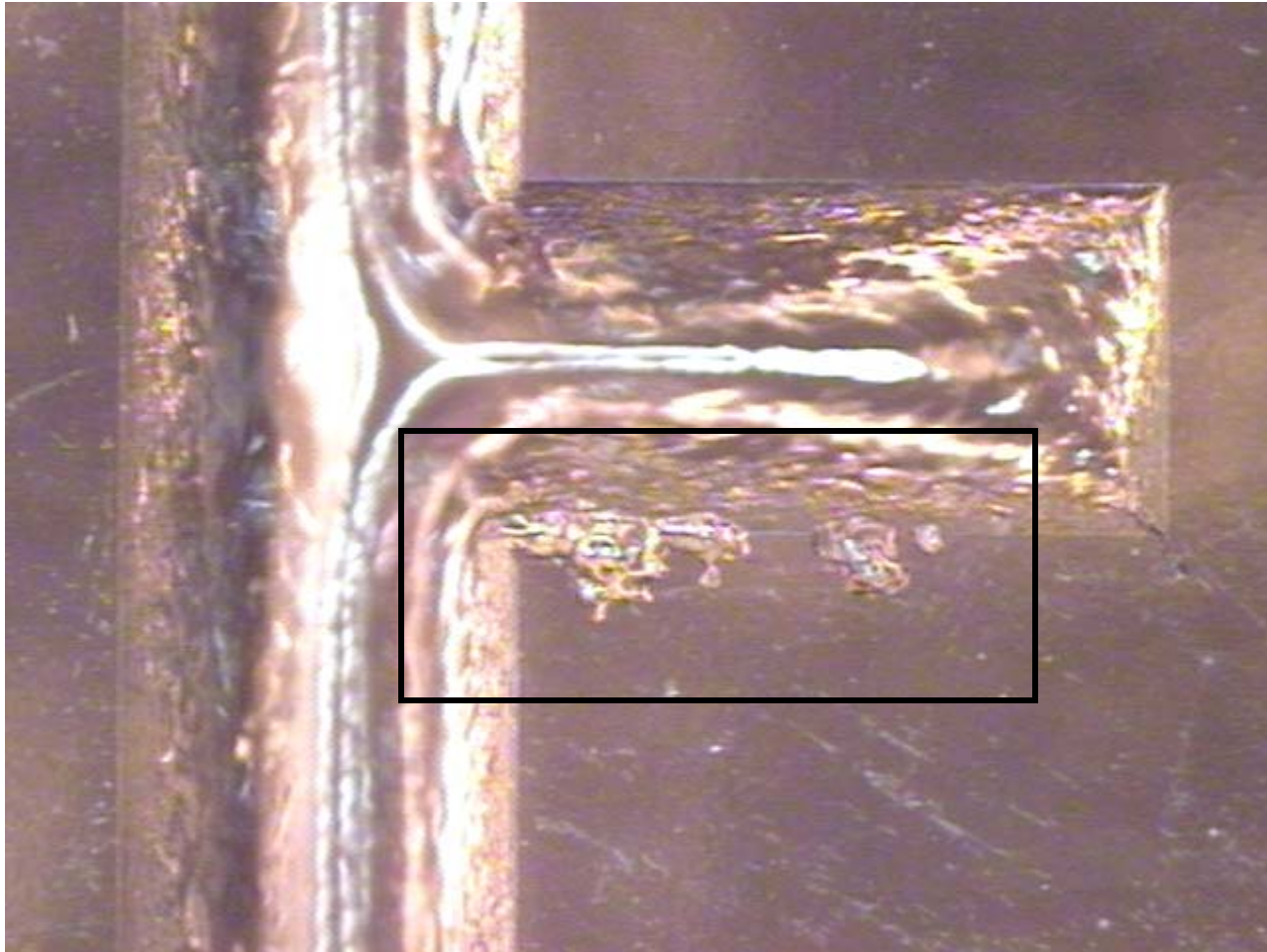




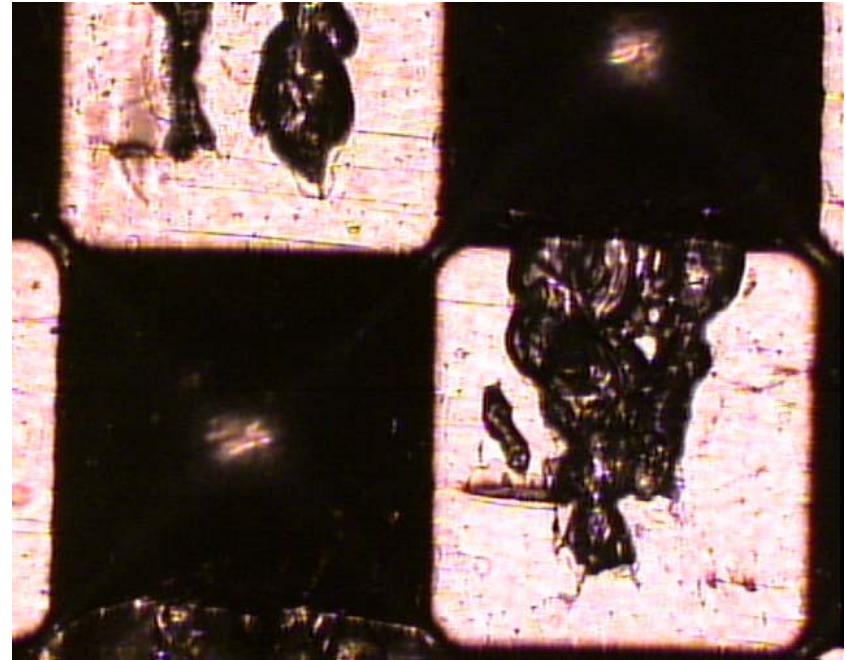
Plate Chipping

On Press:

- Solvent/plate incompatibility
 - Improper cleaning tool
 - Aggressive cleaning technique
- Mechanical issues



Plate Chipping - On Press



Dot Chipping

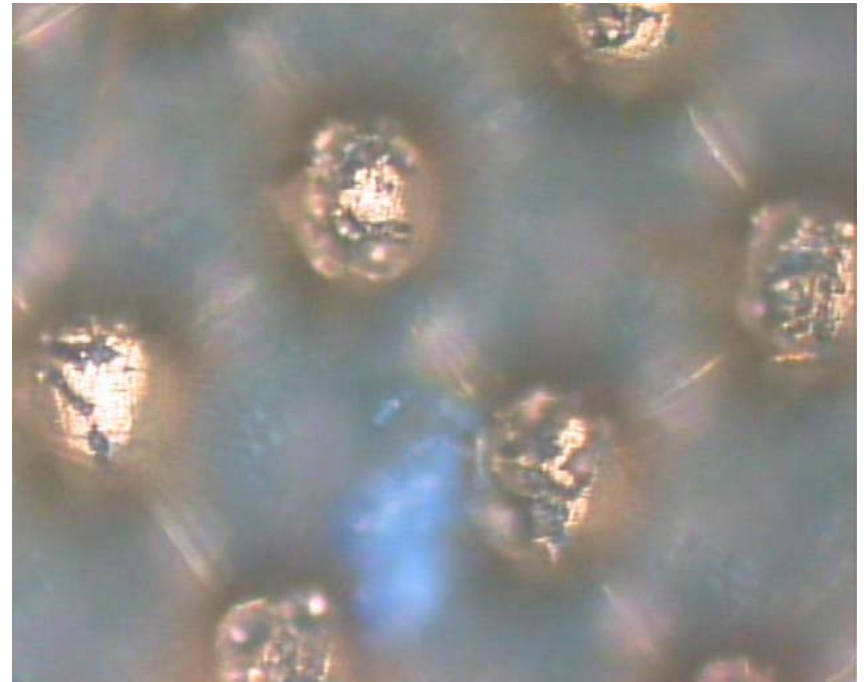
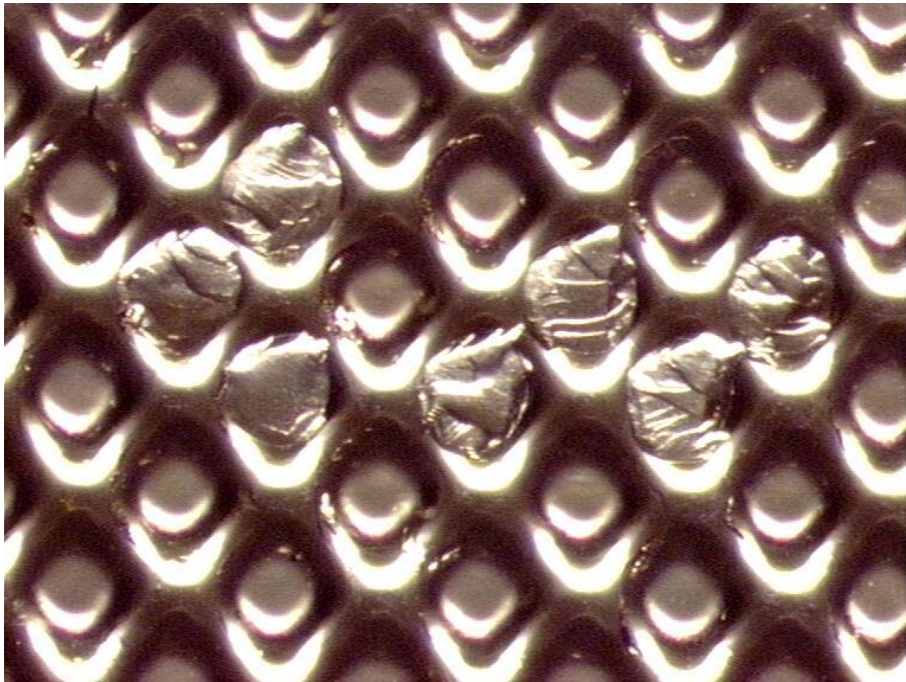




Plate Cracking

- Incompatible inks/solvents
- Overfinishing
- Improper drying
- Improper cleaning/storage
- Exposure to light
- Ozone





Cyrel® Packaging Graphics Products

A Guide to Handling, Cleaning and Storing Cyrel® Photopolymer Printing Plates



*The proper
care of Cyrel®
photopolymer
printing plates will
optimize plate life and
minimize problems in
the pressroom.*

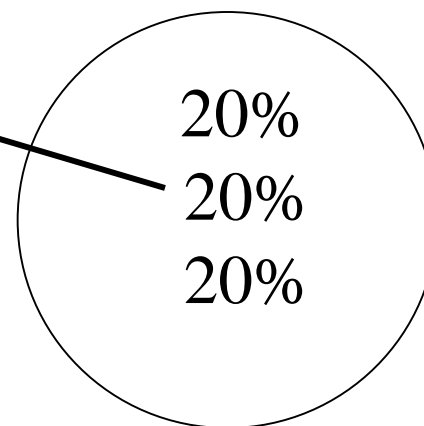


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Cyrel® Plate/Ink Compatibility Guide

	Pure Solvent	Maximum % In Normal Propyl Alcohol Cosolvent	Maximum % in Water Cosolvent
Water	Yes	100	—
Amines (pH adjust)			
28% Ammonium Hydroxide	Yes	N/A	—
2-Amino-2-Methyl-1-Propanol	Yes	N/A	—
Morpholine	No	N/A	—
Monoethanol Amine	Yes	N/A	—
Diethanol Amine	Yes	N/A	—
Triethanol Amine	Yes	N/A	—
Alcohol/Glycols			
Methyl Alcohol	No	50	50
Ethyl Alcohol	Yes	100	—
Isopropyl Alcohol	Yes	100	100
Normal Propyl Alcohol	Yes	—	100
Normal Butyl Alcohol	Yes	100	100
Octyl Alcohol	No	5	5
Benzyl Alcohol	No	5	5
Ethylene Glycol	Yes	100	100
Propylene Glycol	Yes	100	100
Diethylene Glycol	Yes	100	100
Dipropylene Glycol	Yes	100	100
Triethylene Glycol	Yes	100	100
Glycerine	Yes	100	100
Esters¹			
Ethyl Acetate	No	20	N/A
Isopropyl Acetate	No	20	N/A
Normal Propyl Acetate	No	20	N/A
Ketones¹			
Acetone	No	5	5
Methyl Ethyl Ketone	No	5	5
Methyl Isobutyl Ketone	No	5	5
Aliphatic/Aromatic Hydrocarbons^{1,2}			
Heptane	No	5	N/A
Hexane	No	5	N/A
Cyclohexane	No	—	N/A
VM&P Naphtha (3% Aromatic)	No	5	N/A
Lactol Spirits 9300 (9% Aromatic)	No	5	N/A
Lactol Spirits 9500 (14% Aromatic)	No	3	N/A
Lactol Spirits 45 (19% Aromatic)	No	3	N/A
Lactol Spirits 50 (32% Aromatic)	No	3	N/A
Benzene	No	1	N/A
Toluene	No	1	N/A
Xylene	No	1	N/A
Ethyl Benzene	No	1	N/A
Glycol Ethers			
Butyl Cellosolve	No	3	3
Ethyl Cellosolve	No	30	30
Propasol P	No	30	30
Carbitol	No	30	30

Esters



Lower max. % for extended press runs.

¹ For extended run lengths, lower maximum percentages are recommended for best results.

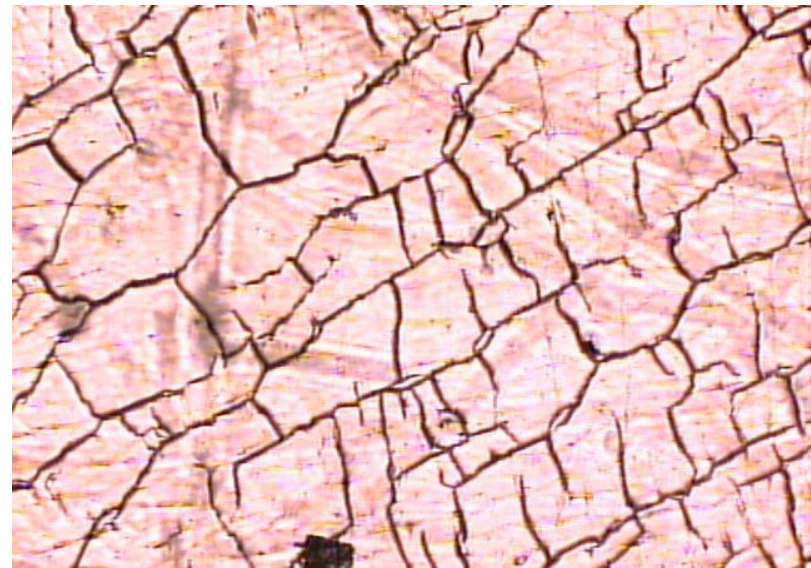
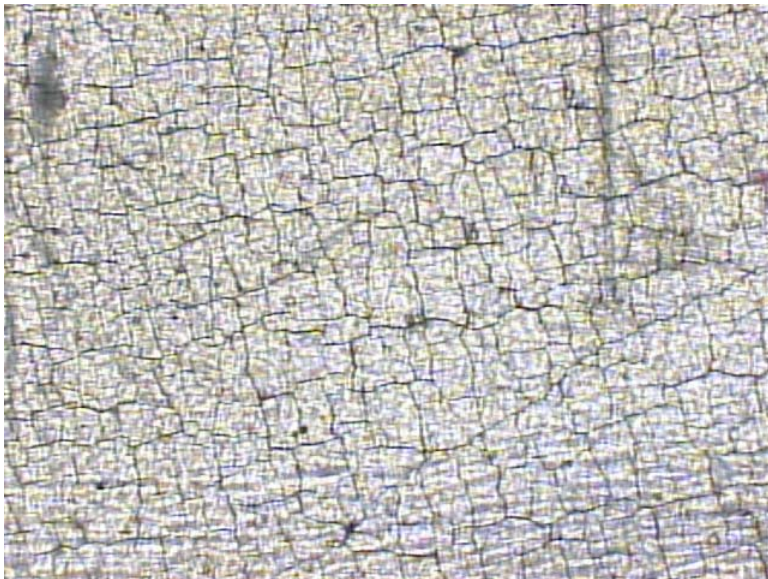
² This category includes petroleum/paraffinic distillates.

— TDR is compatible with water-based inks only. (See Ink Compatibility in Section 8.)

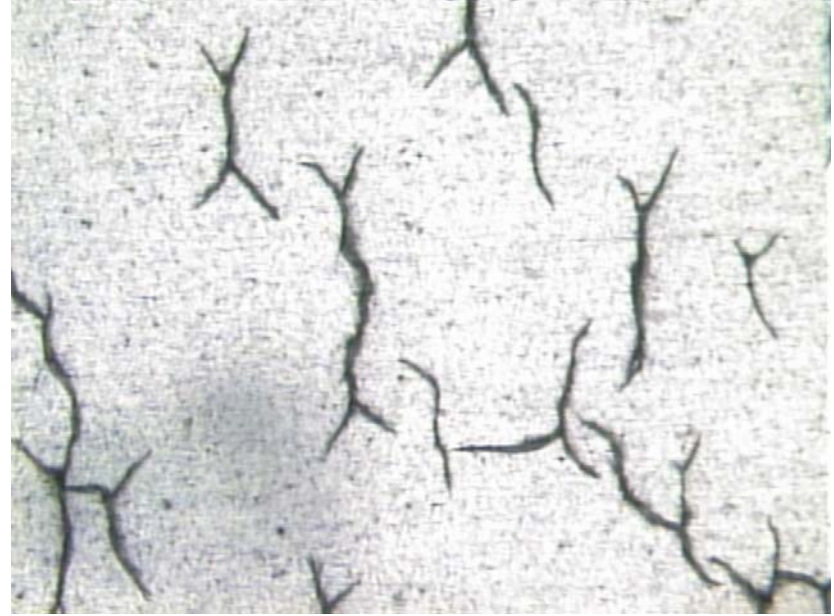
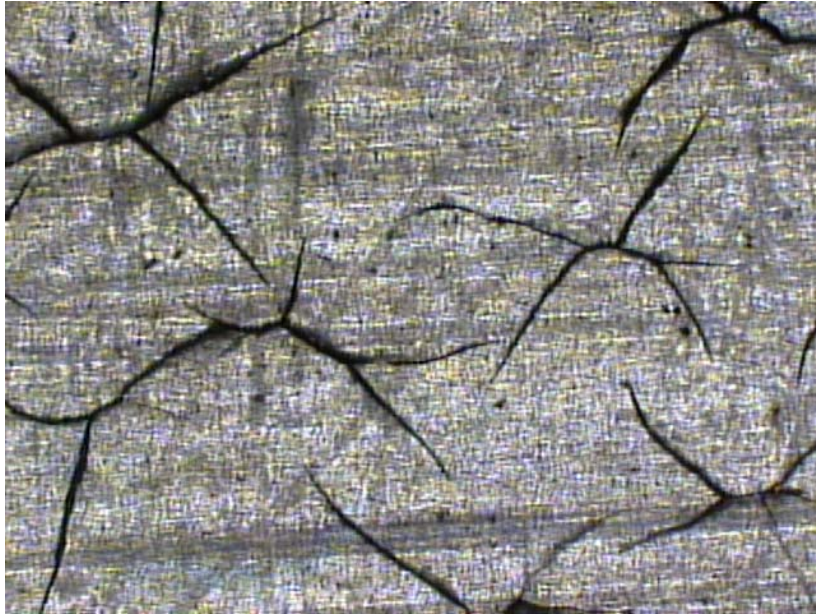
— For UV ink compatibility, check with your Cyrel® Technical Representative



Overfinished Plates



Ozone Cracking





OZONE RESISTANCE OF PLATES

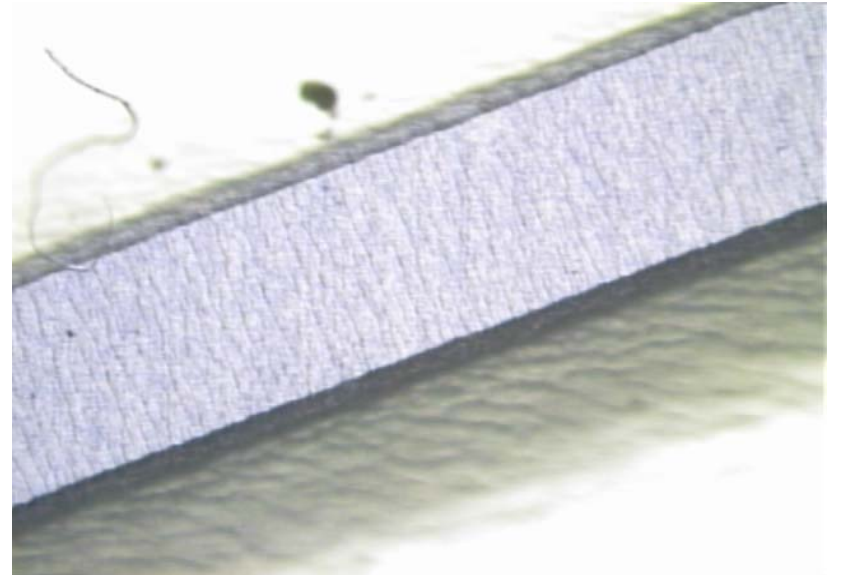
- High Resistance HIQS, HOS,
TDR, NOW, NOWS
DFH, DPI, DPU, DPC
- Moderate Resistance UXL, EXL2, FDX, FD1,
DFM, DPL
- Low Resistance EXL, PLS



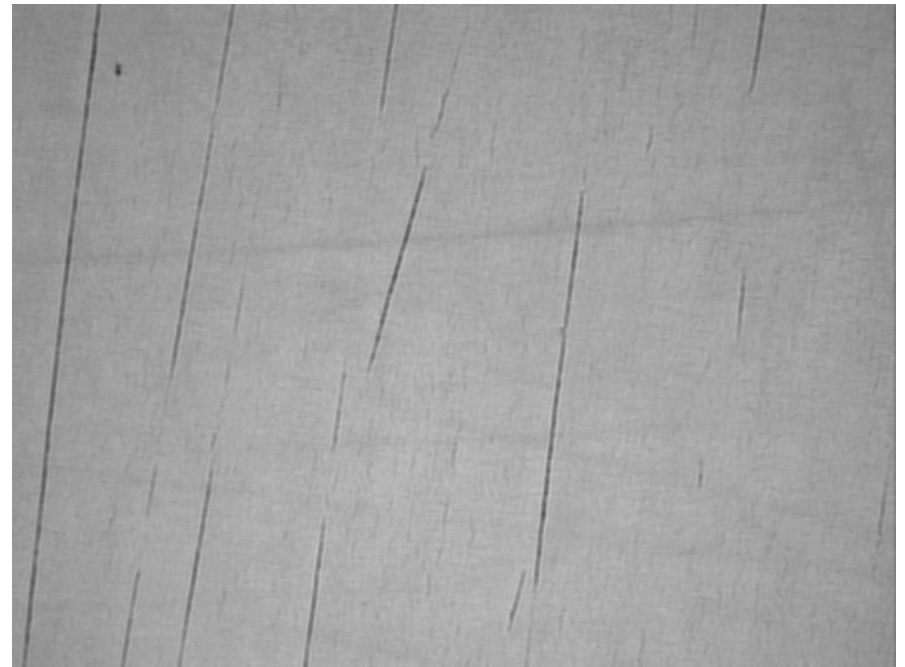
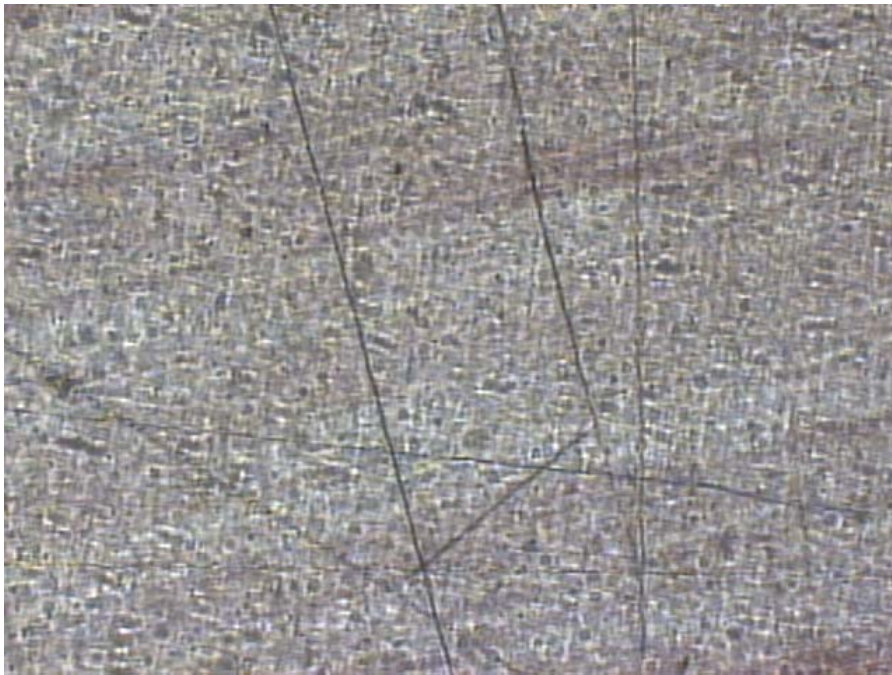
Exposure to Light



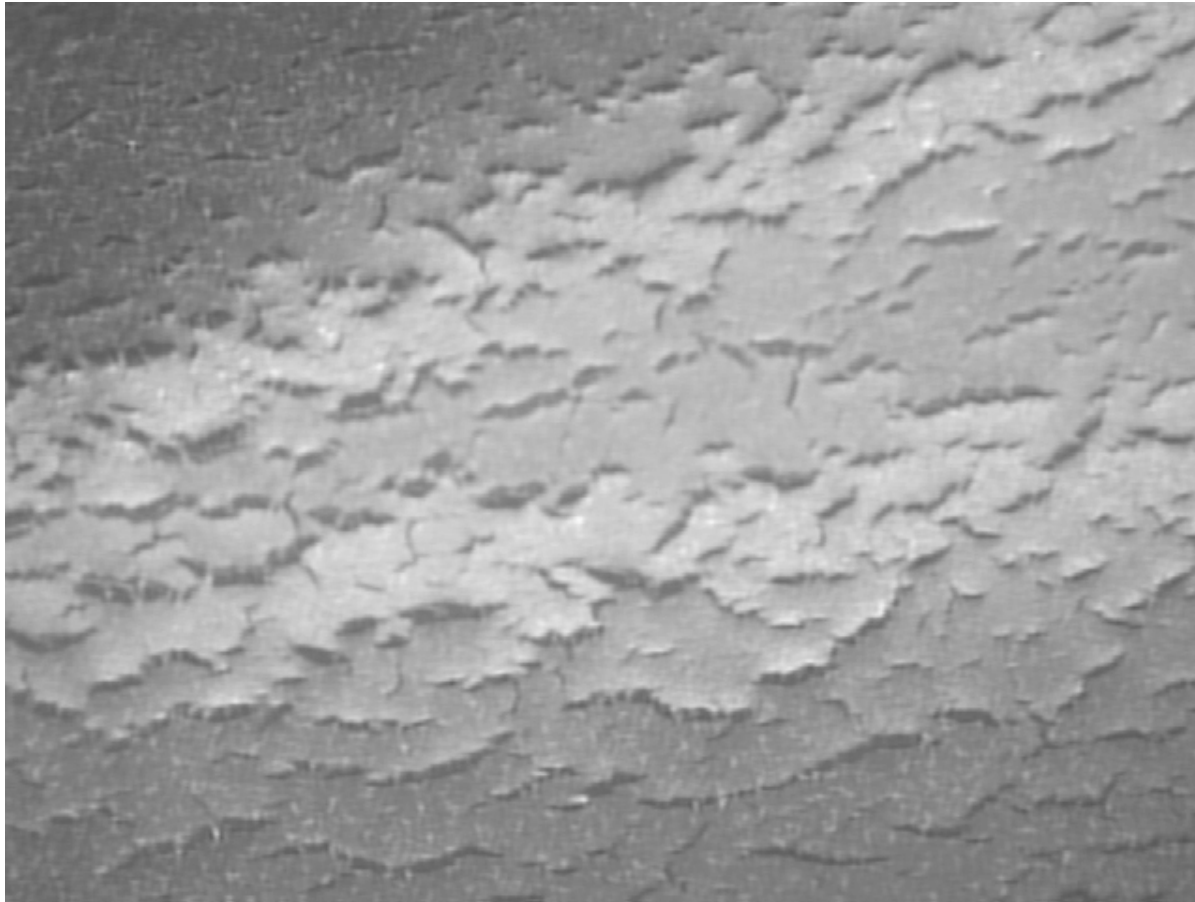
- No UV Protection on lights or windows
- Improper Storage
- Will cause cracking



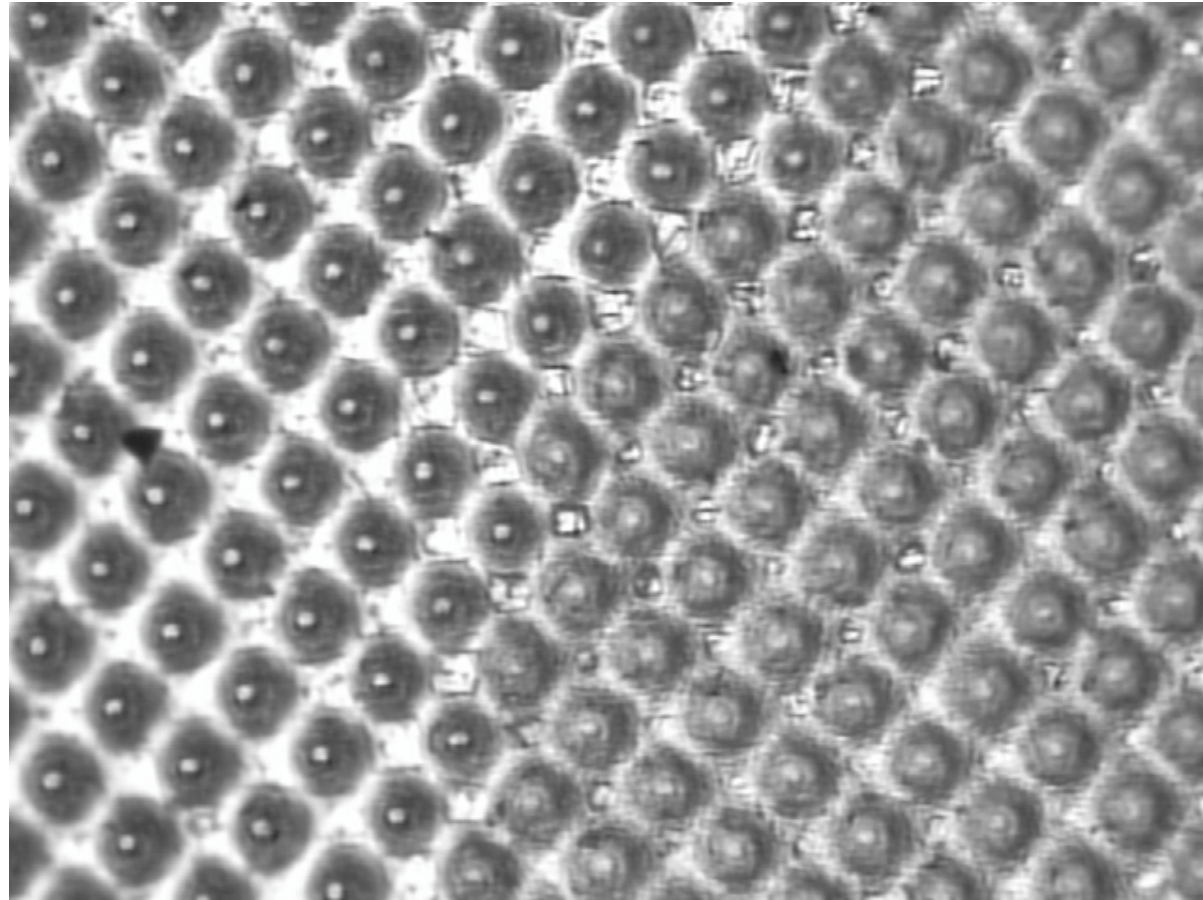
Solvent Cracks



Solvent Cracks

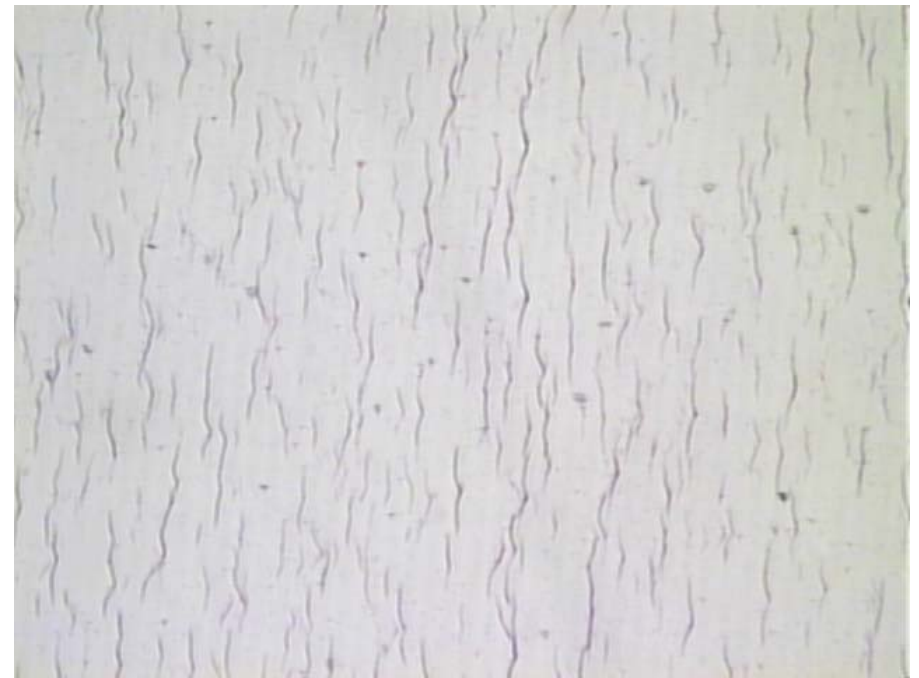
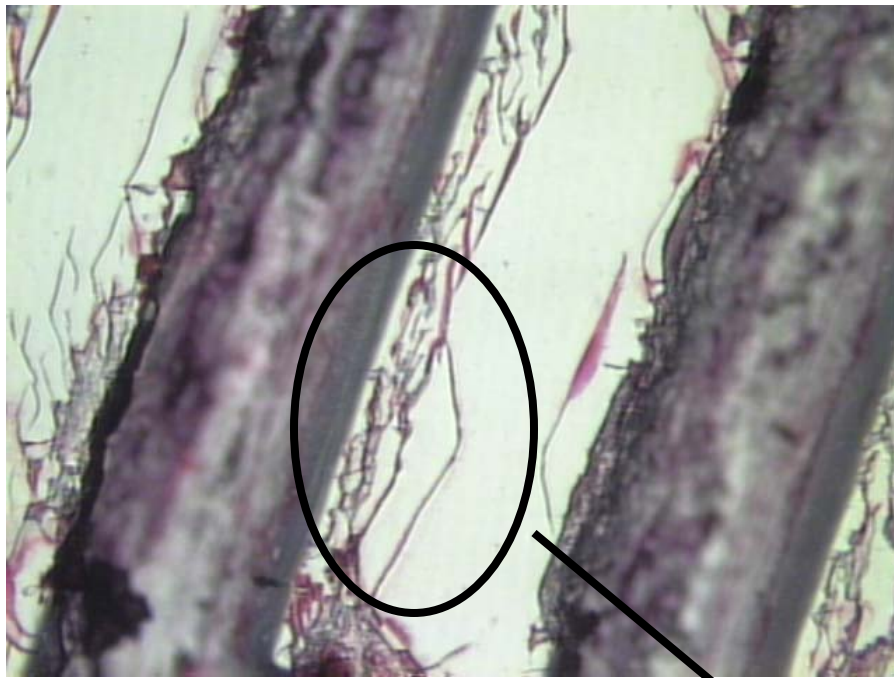


Out of Contact - Loss of Resolution



Overimpression Cracking

Slight Overimpression

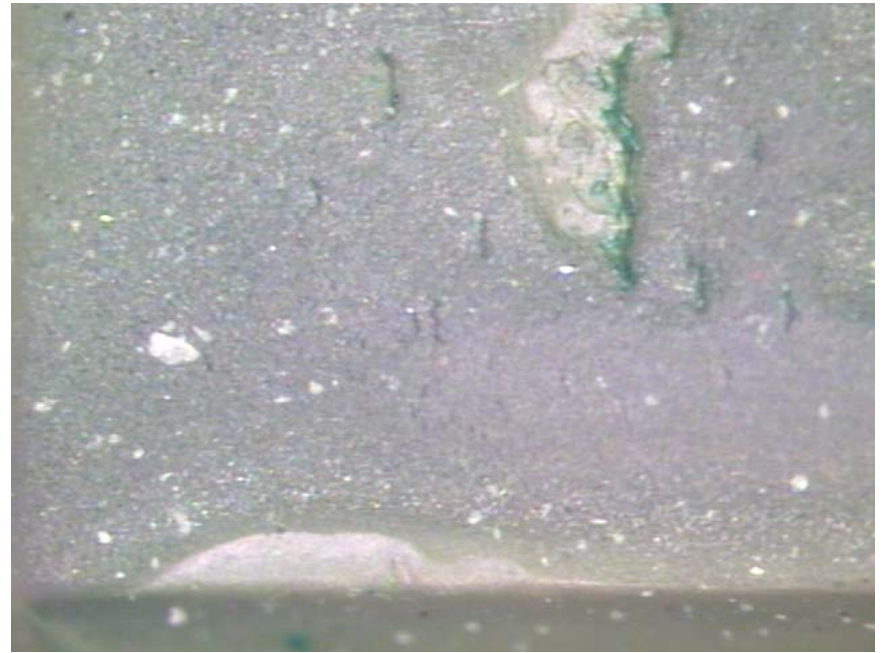
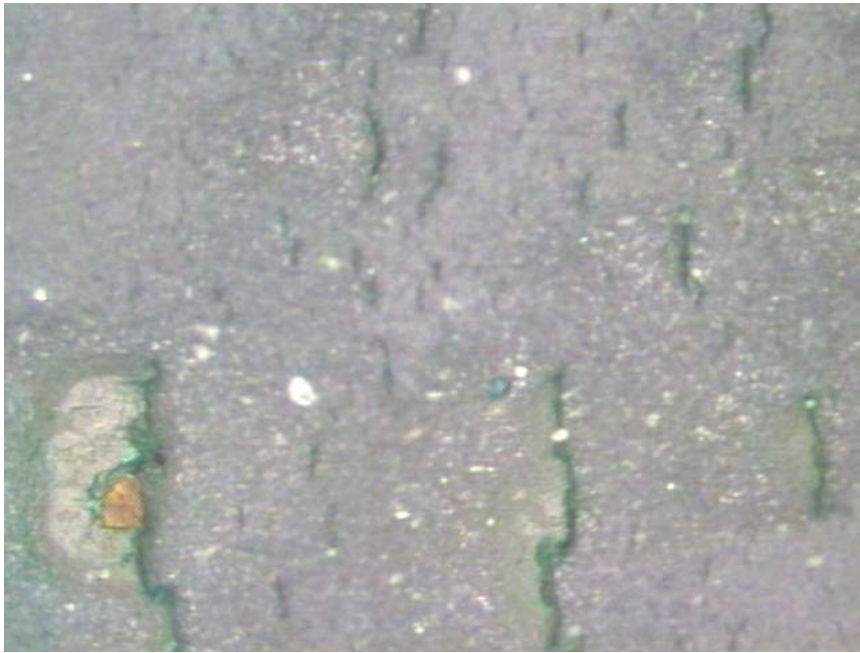


V-Crack



Overimpression Cracking

Overimpression - Anilox to Plate



Cracks/Gouging





V-Crack





Uneven Plate Thickness

- Insufficient exposure
- Excessive washout
- Insufficient drying time
- Dryer temperature too low
- Back of plate not clean
- Incompatible inks/solvents
- Raw material





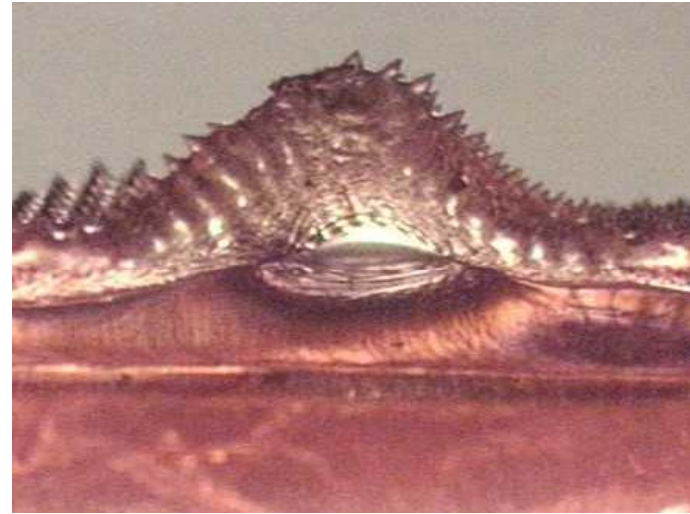
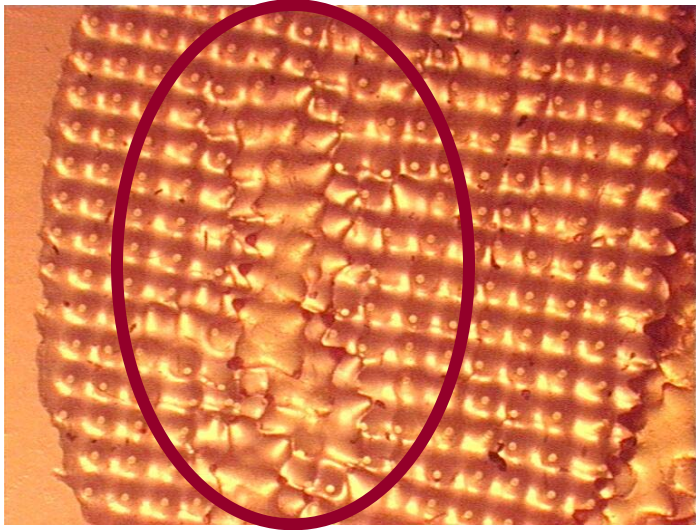
Pinholing

Plate-related

- **Dust, dirt, lint, etc**
 - Under negative or coversheet
 - Exposure bulbs dirty
 - Poor housekeeping
- **Low humidity (static electricity)**
- **Poor ventilation**



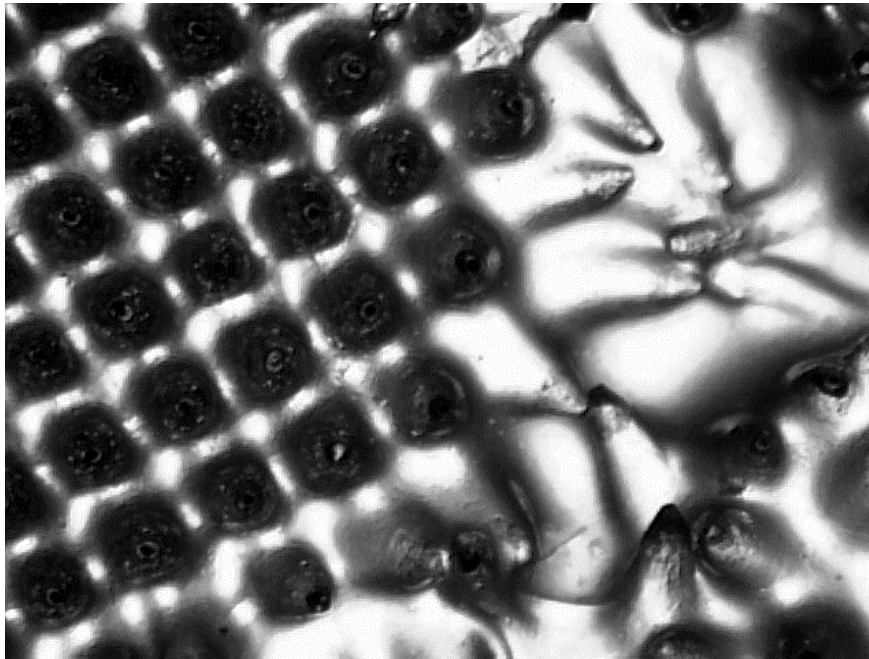
Exposure Issue



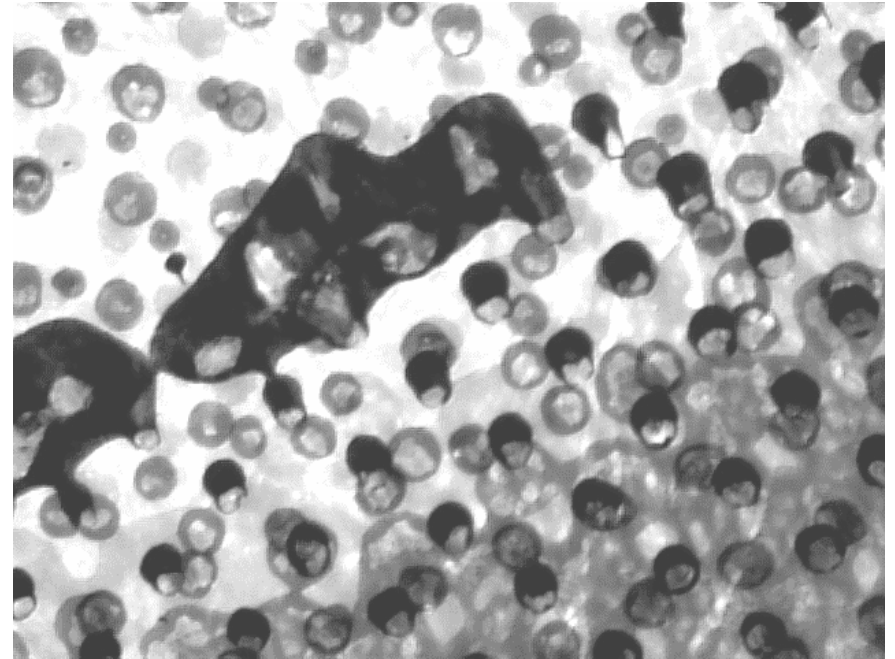
- Insufficient Back Exposure
- No Back Exposure
- Insufficient Main Exposure



Underexposure- Analog Plate



Plate



Print





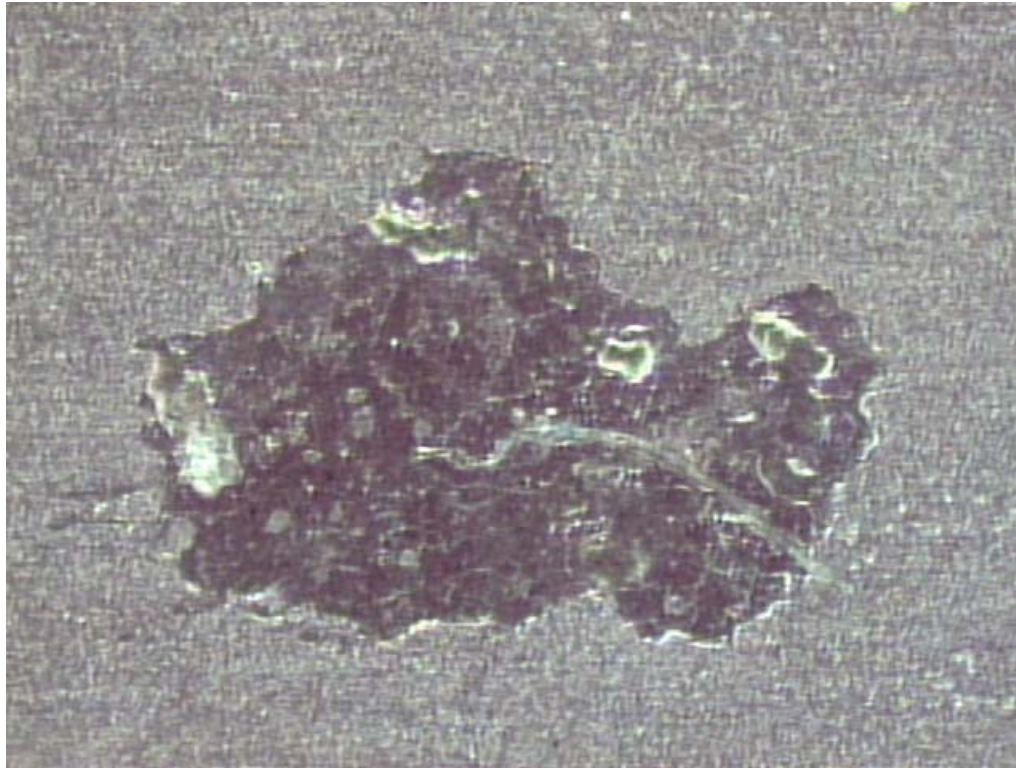
Release Layer Removal*

- Solvent temperature incorrect
- Dirty solvent/tank
- Solvent out-of-balance
- Incorrect brush pressure
- Processor brushes too soft

*Pink slipsheet on polymer that keeps negative from sticking



Release Layer



/cmc

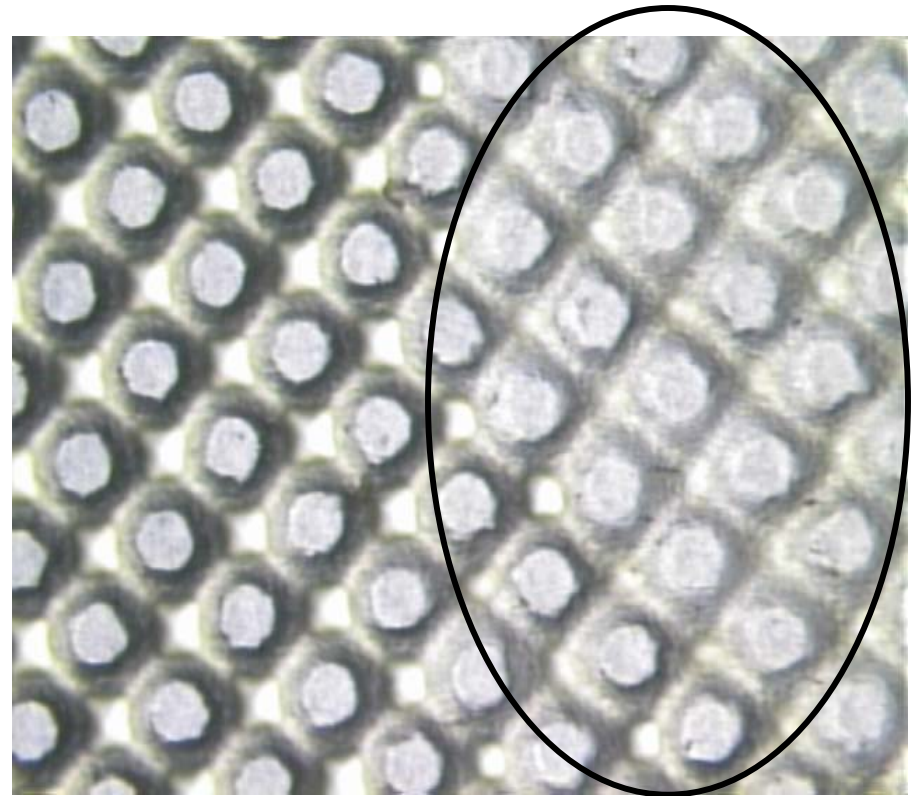
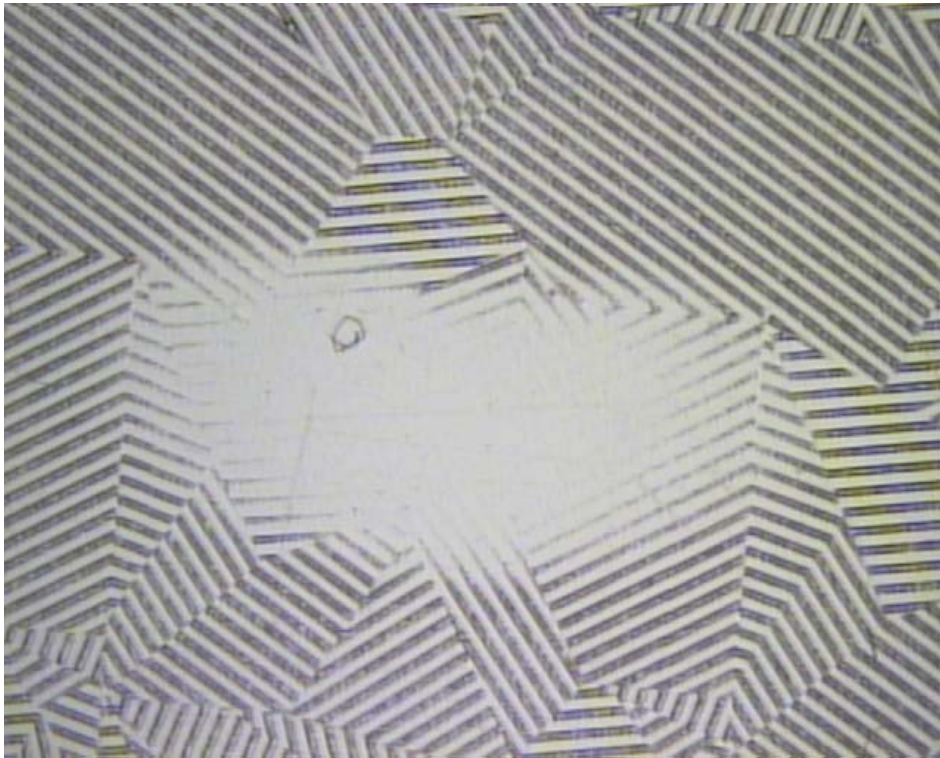



Out of Contact - Analog Plates

- Incorrect film specifications
- Poor vacuum drawdown
- Masking strips not being used
- Masking strips not used properly
- Insufficient vinyl cover sheet contact (platemaking technique)



Out of Contact (Hot Spot)



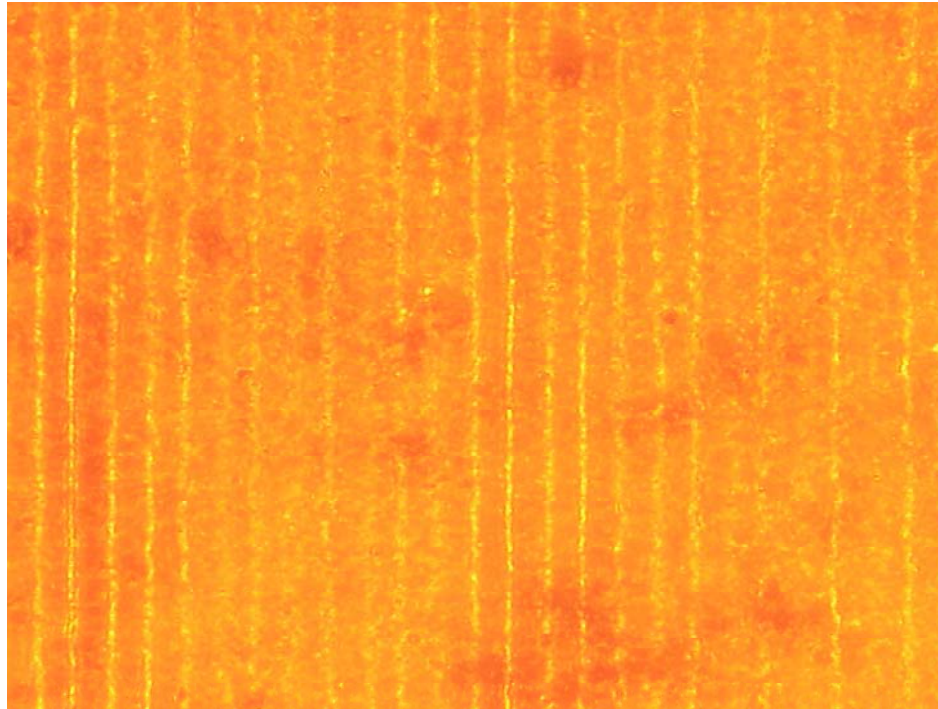


Out of Focus/Unsharp Image (Digital Plate)

- Dirt under the plate during the ablation process
- Imager not calibrated
- Run a focus test for each plate you image



Laser Lines (Digital Plate)



- Imager Not Calibrated Properly
- The Stain Level on the plate is not correct.





Premature Plate Wear

Plate-related

- Incorrect film specs
- Improperly made plate
 - Insufficient exposure
 - Insufficient drying
 - Improper finishing/PX
- Improper cleaning and/or storage





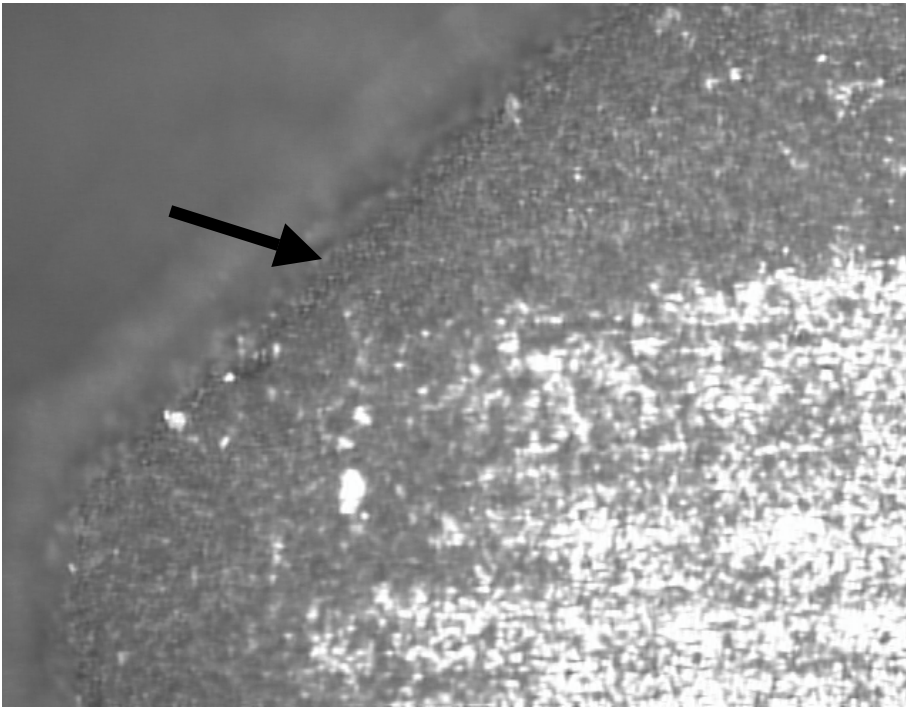
Premature Plate Wear

Press-related

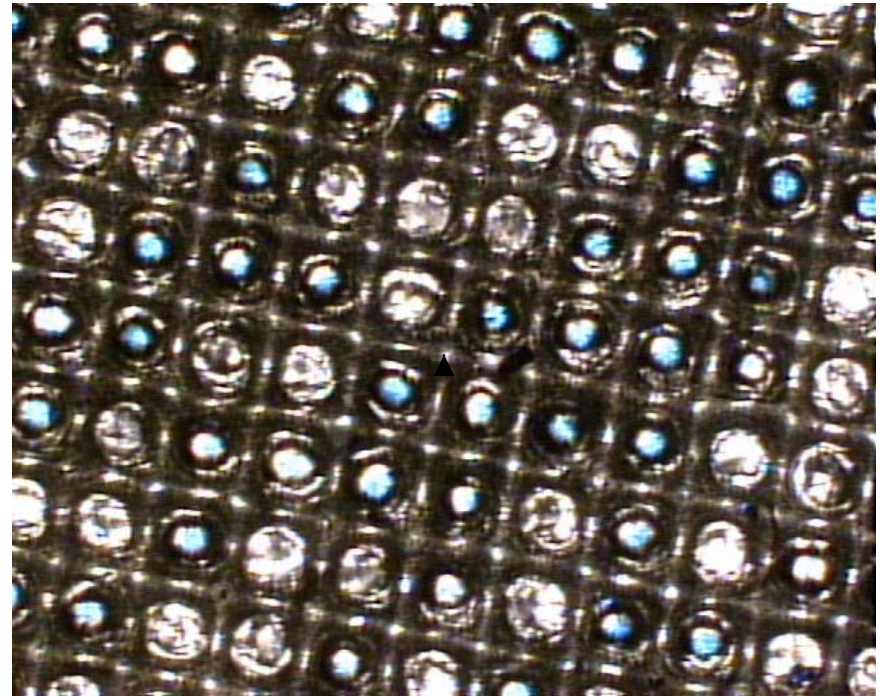
- Too much impression
- Coarse substrate
- Incompatible inks/solvents
- Improper make-ready
- Uneven plate mount
- TIR out of round
- Surface speed mismatch
- Mechanical damage



Premature Plate Wear



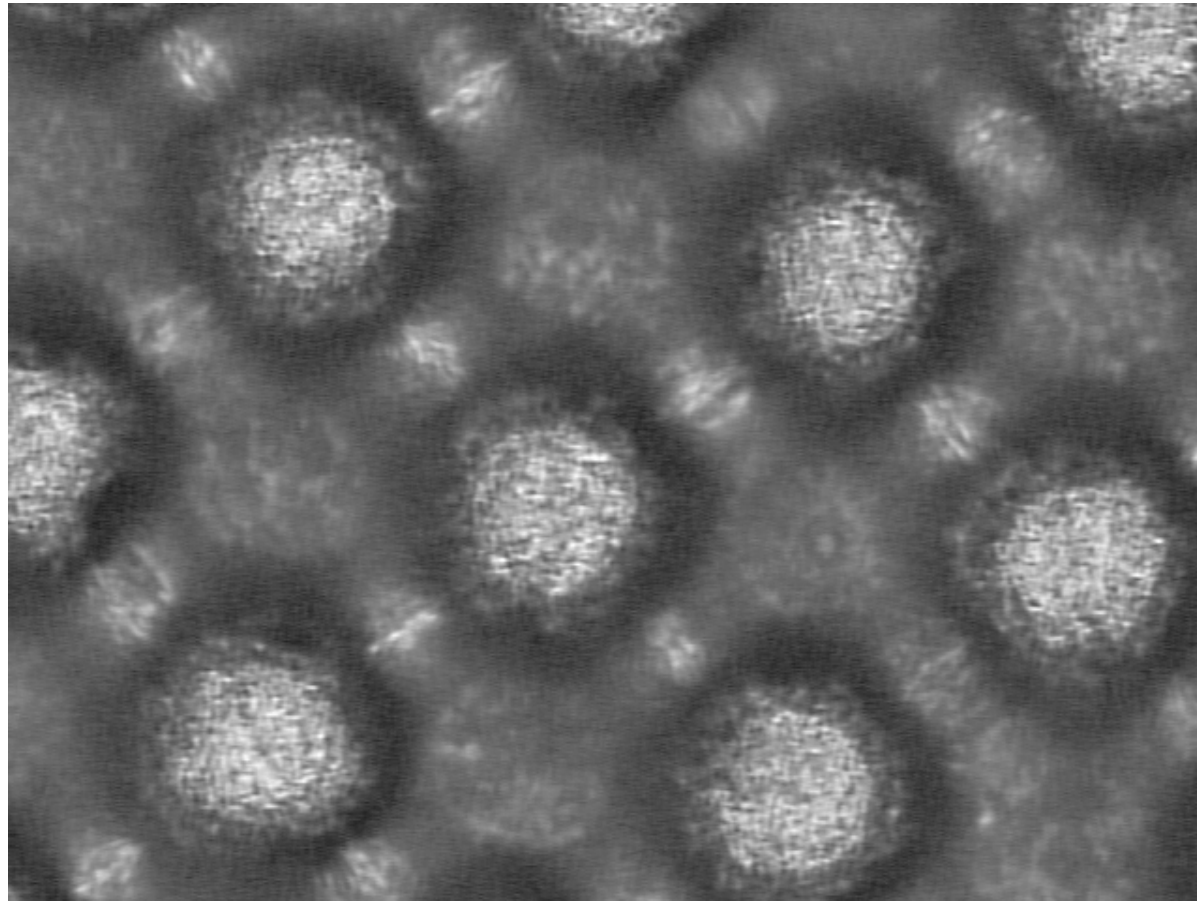
Edge Wear



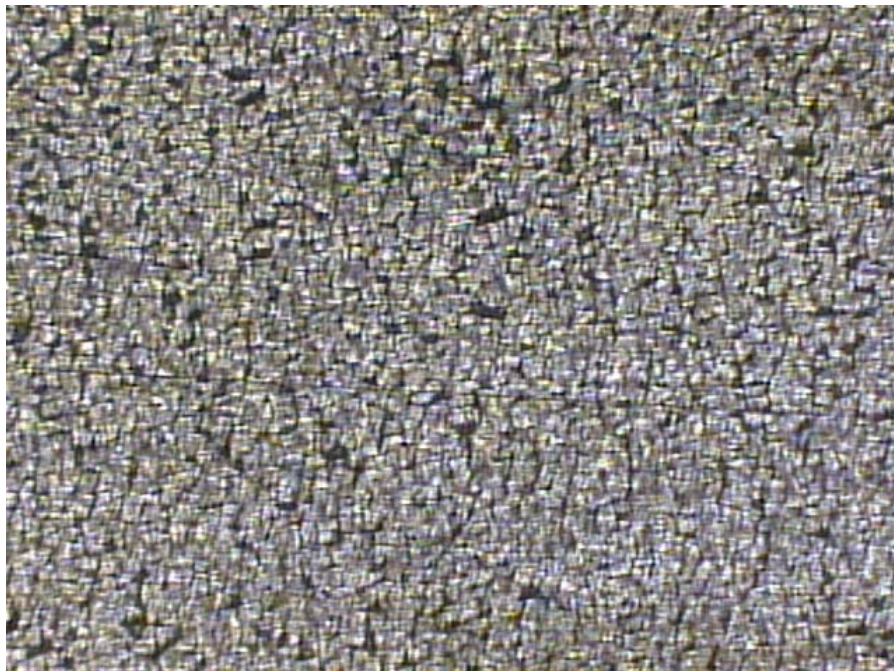
Worn/Broken Dots



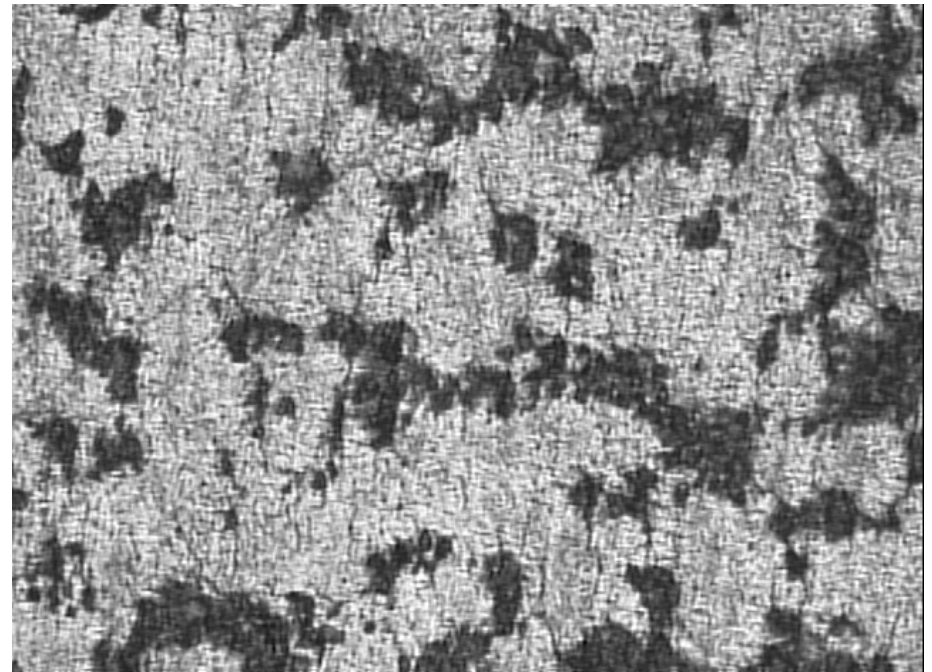
Worn Dots



Premature Plate Wear



Abrasion-Capped Plate



Worn Solid





Summary

Make a good plate the first time

- *Train your platemaker, mounters, pressman*
- *Use recommended film specs*
- *Optimize all platemaking times*
- *Use control strips*
- *Maintain your equipment & solvent*
- *Good housekeeping*
- *Use the quality tools*
- *Document everything*





Troubleshooting Process-of-use Issues

DuPont Imaging Technologies

THANK YOU!



The miracles of science™